

Intramural Soccer Fields Phase II Design Program

Utah Valley University
Orem, Utah
New Intramural Soccer Field Complex



Participants

The following is a list of various individuals that were represented during the programming phase.

UVU Program Participants

Jim Michaelis - Associate Vice President - Facilities / Planning
Frank Young - Senior Director Space Development
Denney Rucker - Project Director for Engineering

DFCM Program Participant

Mike Ambre - Project Manager

Program Architect and Engineers

Architecture

Scott Prior - Prior and Associates Architects, LLC

Civil Engineer

Jon King - King Engineering Inc

Electrical Engineer

Bill Grandy - Thomas & Kolkman Engineering Inc.



Participants and Consultants

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1.0 Geneva Site History and General Project Description

The Utah Valley University Geneva Parcel is located within the old Geneva Steel Plant located just east of Vineyard, Utah between 400 North and 800 North and 1800 West. Construction of Geneva Steel began during World War I when the US Government needed an inland steel producing facility near a plentiful ore source. The government acquired the land and began development.

Construction and improvements continued for years and were completed in 1944. In 1946, shortly after World War II ended, it was sold to a private owner.

In the intervening years, Geneva Steel was a mainstay of the Utah County economy. Steel production continued with several temporary plant closures in the 1980's and 1990's until its final closure in 2002.

Dismantling of the structures at the site began immediately and was completed in 2007.

Since then the site has been considered for several uses including the Rio Tinto Stadium which was finally built in Sandy, Utah.

Utah Valley University has acquired a large portion of the site and intends to develop this in phases which when complete will be an intramural and sports complex. A Frontrunner commuter train stop will also be located on the property.

The site as it sits today is composed of empty fields with concrete foundations and pits scattered throughout. There are several old asphalt roads bounding the parcel but these are in poor to completely failed condition. No structures remain standing.

Because of safety issues caused by several deep and potentially hazardous open pits at the property, Utah Valley University opened the site as a dump for earth, asphalt, and concrete waste in the spring of 2012. Since that time, approximately 150,000 cubic yards of material has been brought in. Utah Valley University also contracted with a metal salvage company to remove and salvage all of the abandoned metal at the site. The salvage contractor has further broken up the existing foundations in their work.

There is one large and several smaller slag piles leftover from the original Geneva Steel operation located near the west boundary and there are two abandoned asphalt parking lots located to the northwest and south of these slag piles. The asphalt at these parking areas is in very poor condition.

In Phase I of the intramural and sports complex development project, Utah Valley University has contracted with a local earth moving company to level the slag piles and build a rough graded pad for the future soccer fields. When this is completed it should be ready for Phase II where additional material import and building of the new synthetic turf soccer fields will be completed.

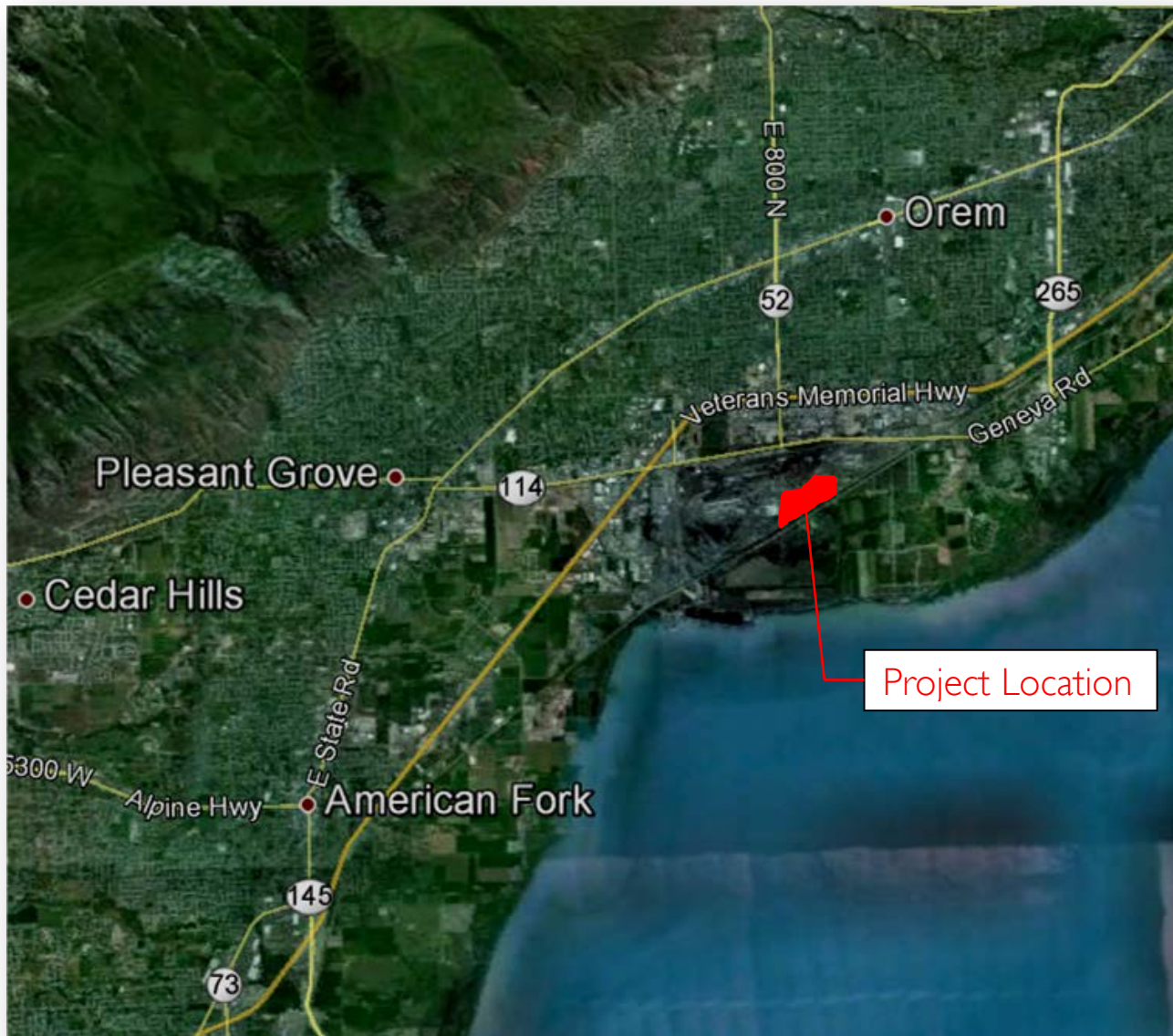


I.0 Geneva Site History and General Project Description

Phase II of the work will consist of building four new synthetic soccer fields with a drainage system. Pole lighting will be provided for the soccer fields. A restroom facility will be provided with exterior water fountains, janitorial space and additional storage space. The restroom facility will not need to be heat or air conditioned because the building will only be used during warm periods of the year. Access to the soccer fields will be from the existing 400 North and Mill road intersection (see site analysis). From this intersection a new road will need to be developed to tie into a parking area at the South/West end of the site. As well as the road development utilities will need to be extended from the intersection of 400 North and Mill Road (see site analysis).

Rocky Mountain Power will provide primary electrical service to the property from the East side of Geneva Road. All electrical service requirements with need to take place with Rocky Mountain Power, UVU Master Plan, and allow for development on adjacent properties.





I.0 a. General Project Location





1.0 b. Site Access and Project Boundries



prior & associates architects
architecture planning design

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2.0 Geneva Site Narrative

The Utah Valley University Geneva Parcel is within the old Geneva Steel Plant property located just east of Vineyard, Utah. Geneva Steel opened during World War I when the US Government needed an inland steel producing facility near a variety of plentiful ore sources. The land was acquired by the government and plant development began.

Construction and improvements on Geneva Steel continued for years and was finally completed in 1944. In 1946, shortly after the war ended, it was sold to a private owner.

In the intervening years Geneva Steel was a mainstay of the Utah County economy. Steel production continued with several temporary plant closures in the 1980's and 1990's until its final closure in 2002. Dismantling of the structures at the site began immediately and was completed in 2007.

Since then the site has been considered for several uses including the Rio Tinto Stadium which ended up being built in Sandy, Utah.

Utah Valley University has acquired a large portion of the site and intends to develop it in phases into an intramural sports complex. In the future a Frontrunner commuter train stop will also be located on the property.

The site today is composed of empty fields with concrete foundations and pits scattered throughout. There are several old asphalt roads bounding the parcel but these are in poor to completely failed condition. No structures remain standing.

Because of safety issues caused by several deep and potentially hazardous open pits on the property, UVU opened the site as a dump for earth, asphalt, and concrete waste in the spring of 2012. Since that time approximately 150,000 cubic yards of material has been relocated to the site. UVU also contracted with a metal salvage company to remove and salvage all of the abandoned metal at the site. The salvage contractor has also dismantled the existing foundations.

There is one large and several smaller slag piles left from the original Geneva Steel operation. These piles are located near the west boundary of the property. There are two abandoned asphalt parking lots located to the northwest and south of these slag piles. The asphalt at these parking areas is in very poor condition.

In Phase I of the intramural and sports complex development project, UVU has contracted with a local earth moving company to level the slag piles and build a rough graded pad for the future soccer fields.

When the grading process is complete the site will be ready for Phase II. Phase II will include additional material import and building of the new synthetic turf fields.



3.0 Existing Site Conditions and Climate

Site

The Utah Valley University Geneva Parcel is located within the old Geneva Steel Plant located just east of Vineyard, Utah at 1800 West between 400 North and 800 North in Orem, Utah. Utah Valley University has acquired a large portion of the site and intends to develop it in a series of phased projects with the end result being an intramural sports complex. A future Frontrunner commuter train stop will also be located on the property.

The site as it sits today is composed of empty fields with decrepit concrete foundations and pits scattered throughout. There are several old asphalt roads bounding the parcel but these are in poor to completely failed condition. No structures remain standing.

Climate

The climate of Orem is mild with possible extremes. Heavy snow can occur during the winter and high temperatures can occur during the summer months. The average high July temperature is 92 degrees Fahrenheit and the January average temperature is 37 degrees Fahrenheit. The average rain fall is 15.31 inches and the average snow fall is 15 inches annually. On average there are 237 days per year of sunny skies. Occasionally, northerly winds can be very strong near the lake with passing frontal systems.

Climate and Geographic Design Criteria

Ground Snow Load	43
Roof Snow Load	30-40
Wind Speed	90(40)
Seismic Design	Category D I
Weathering	Severe
Frost Line Depth	30"
Winter Design Temperature	8
Mean Annual Temperature	45
Air Freezing Index	1000
Ice Shield Underlayment Required	Yes

Soil / Geotechnical

No soils investigation or geotechnical report is available. A geotechnical report will be required for the restroom facility and light pole bases. Ground water depth is not known at this time but is thought to be approximately 10'-0" below grade.



4.0 Existing Site Utilities and Recommendations

Road

The project will consist of design and construction of a tie-in road from the corner of 400 North and Mill Road. The road will extend to the west side of the development and turn in to a parking area. The project will consist of extending utilities from this corner location to needed areas of the development.

Domestic and Fire Protection Water

A 12 inch water line will be installed to the intersection of Mill Road and 400 North (see attached drawing). The project will require the connection and extension of this water line to the project. It is not anticipated at this time that a fire line will need to be provided. Water for the project will be for drinking fountains, restroom toilet fixtures, restroom sinks, housekeeping purposes, i.e. hose bibs and janitorial sinks. It is not anticipated that any landscaping will be part of this phase of the project.

Power / Electrical Service

Rocky Mountain Power will provide primary electrical service to the property from the east side of Geneva Road. Coordination of electrical service will be required with Rocky Mountain Power, Utah Valley University Master Plan and allow for development on adjacent properties.

All work required for the electrical service which is not installed by Rocky Mountain Power shall be clearly indicated on the construction documents. This may include work such as underground conduit for conductors to be installed by Rocky Mountain Power.

All new electrical service work shall be in accordance with Rocky Mountain Power Electrical Service Requirements Manual.

Secondary electrical service should be 277/480 Volt, 3 Phase, 4 Wire for all athletic fields lighting and parking lot lighting. Utilize dry type step down transformers for 120/208 Volt, 3 Phase, 4 Wire electrical service in buildings.

Consideration should be given to installing one service for the restroom building, parking areas and soccer fields and a second service for the future baseball fields to minimize the length of secondary feeders and branch circuits to the playing fields lighting systems.

Sanitary Sewer

An 8 inch sanitary sewer will be located center/west of Mill Road (see attached site drawing). The sewer line will extend down the new road from the corner of 400 North and Mill Road. The project will require the connection and extension of this sanitary sewer line to required locations



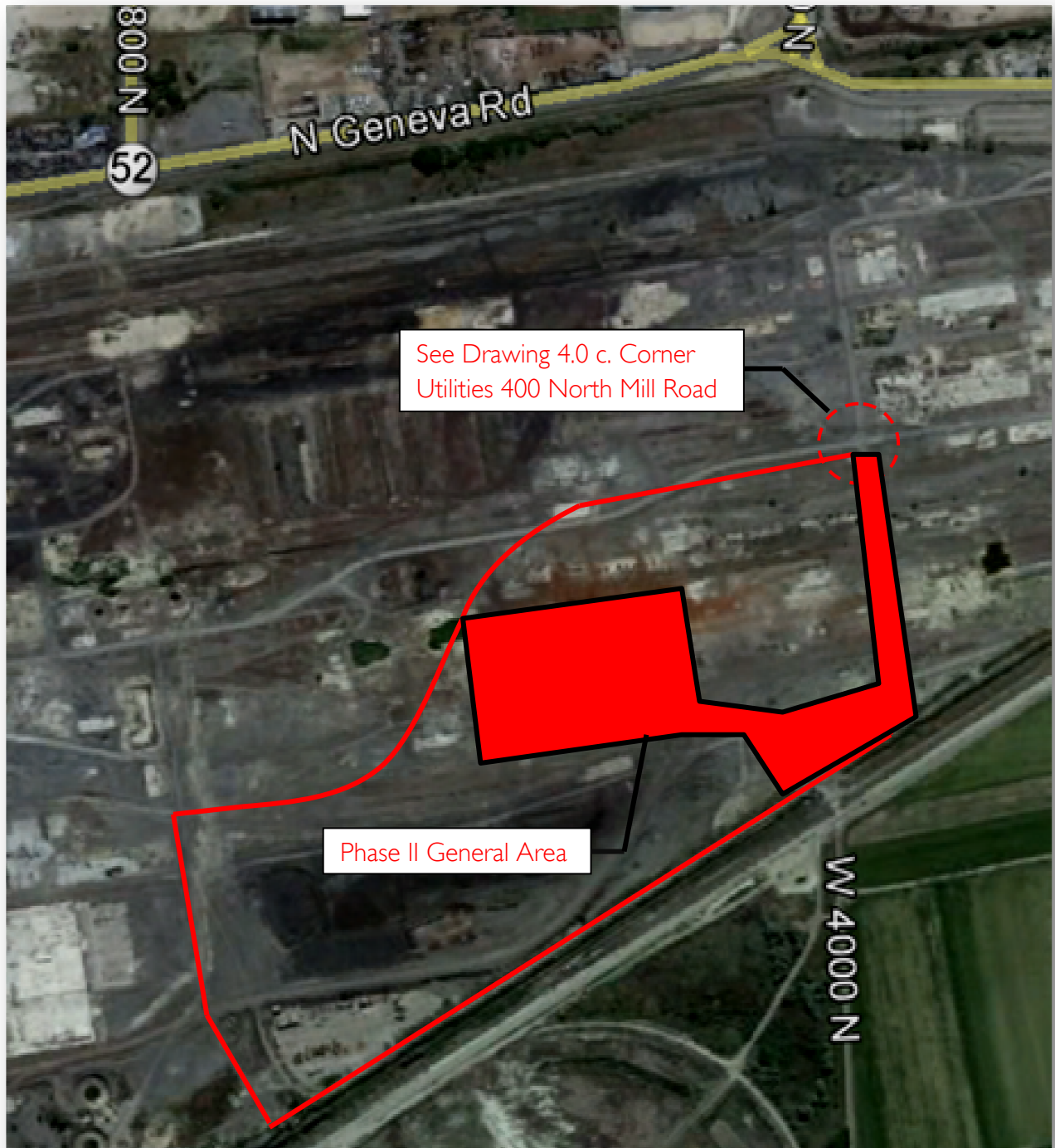
4.0 Existing Site Utilities and Recommendations

on the project. Consideration needs to be given for future phases of the development for proper sizes.

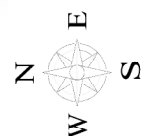
Storm Drainage and Irrigation

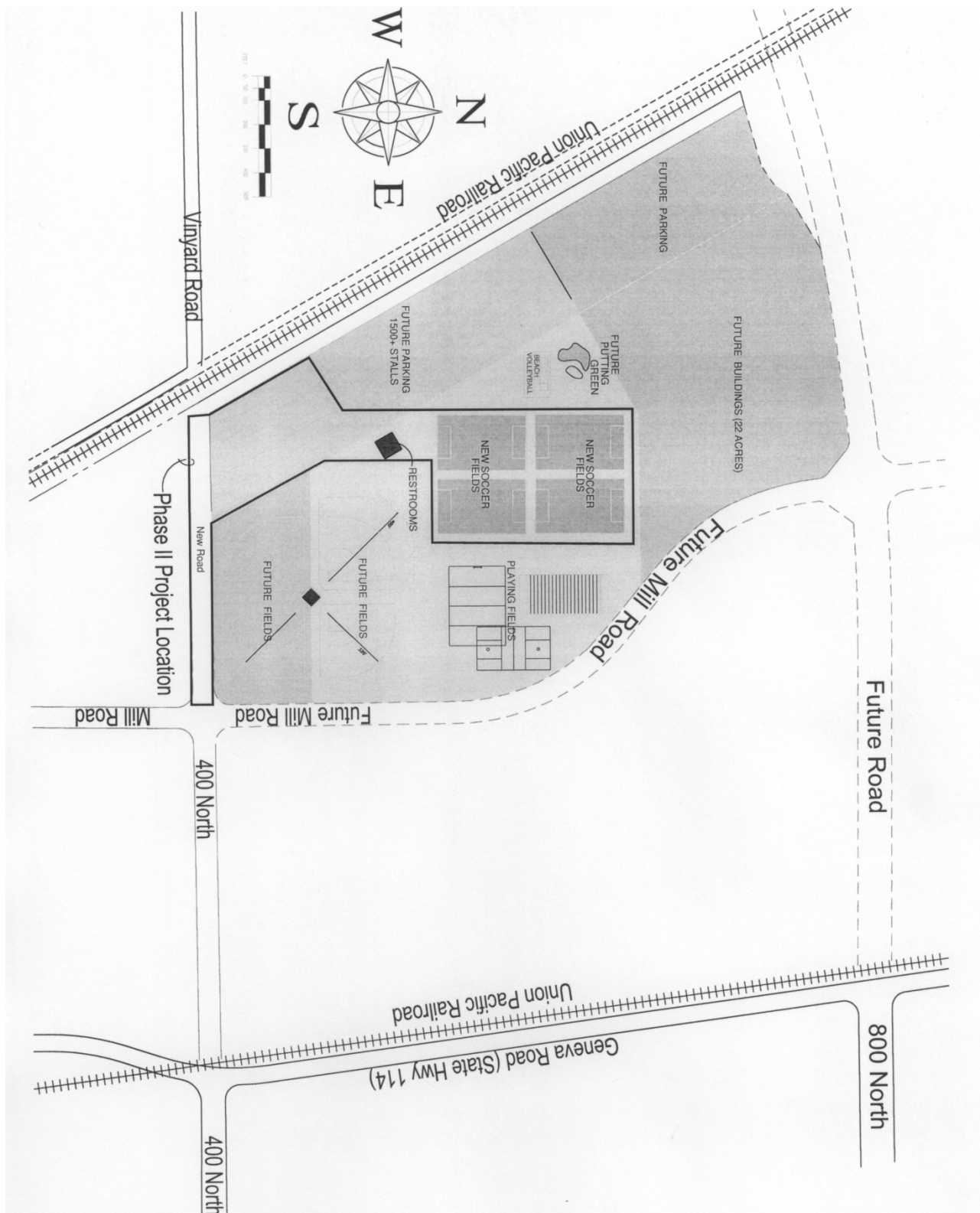
An 18" storm drain will be installed to the corner of Mill Road and 400 North (see attached drawing). The storm drain will need to extend down the new road from the corner of 400 North and Mill Road. The project will require storm drain connections for parking areas along with design for potential retention for parking areas in the event of heavy rains. Consideration need to be given for future site parking development as part of other phased work.





4.0 a. Large Property Aerial View





4.0 b. Proposed Overall Site Design



5.0 Site Design and Planning/Programming

Civil

The Civil Engineering component will include completing a site topographic survey of the following areas: soccer fields, restroom facility, access roadway, handicapped parking lot at restroom facility, existing asphalt and gravel parking lot and entrance. The survey will also locate existing water, sewer, storm drain, electrical and natural gas lines along the intersection of 400 North and Mill Road. A topographic survey of all utility connections and corridors will also be provided. A boundary survey of southern property line of the Utah Valley University Parcel will be completed for use in the alignment of the proposed access roadway.

The Civil Engineer will also provide the design, layout, grading, and drainage of four (4) adjacent NCAA synthetic turf soccer fields; each with a playable synthetic turf surface area of 360' x 225' and a total synthetic surface area of 380' x 245'. The design shall include a proven, durable, commercial grade, low maintenance, synthetic turf surface system, 6 inches of permeable gravel, and a sub-surface drainage system connected to the storm drain located approximately 1,100 feet to the south of the southernmost field at or near Vineyard Road (400 North). The fields shall be aligned north-south and have a minimum 50 feet spacing between playable borders (30 feet spacing between synthetic surface boundaries).

The Architectural/Engineering team will also design, layout, grade and drain a 30 foot asphalt paved space between the synthetic surface boundaries and a 15 foot wide paved asphalt surface along the perimeter of the four (4) fields. Storm water shall be collected by a new storm drainage collection system tied to the existing storm drain in Vineyard Road (400 North). Each synthetic surface shall be bounded by a 6 inch wide concrete boundary wall/mow strip flush with the surface. Each field shall be striped for both soccer and football, meeting the requirements of the NCAA. See exhibit for approximate layout.

In addition to the above designs and surveys the following will also be provided:

- Design of an 8 foot high chain link security fence to enclose the soccer fields, including lockable main and vehicle gates
- Design of approximately a 1,700 lineal foot water and sanitary sewer connection from the intersection of 400 North and Mill Road to the new restroom facility
- Design, layout, grading, and drainage of a new ten (10) stall (8 handicapped) parking lot at the new restroom facility
- The handicapped parking will be connected to the new access road. There will be site grading and drainage at the new restroom facility. The drainage shall be connected to the existing storm drain located at or near Vineyard Road (400 North).



- The design, layout, and grading of a 20' wide concrete sidewalk from the new handicapped parking area at the restroom to the playing fields
- Design, layout, and grading of a 10 foot concrete sidewalk from the existing asphalt parking shown on the exhibit to the new playing fields
- Design and rehabilitation of approximately 115,000 square feet of existing asphalt pavement (crack seal, asphalt patch, crack inhibiting fabric, and 2 inch compacted asphalt overlay) at the existing asphalt parking lot and parking lot entrance along with a new circulation plan and striping layout
- Design of approximately 2,400 lineal feet of a new 30 foot wide paved, two lane roadway with 5 inch base that shoulders the Utah Valley University property boundary at the approximate location of the extension of Vineyard Road (400 North) to the new playing fields. See exhibit for approximate location.

Architectural

Building and finish materials used should be very durable, washable and require a minimum amount of maintenance. Exterior materials should reflect some aspects of the building materials used for the main campus but will not necessarily be required to match exactly. The exterior materials should be highly durable and be graffiti-proof in nature.

Codes and Regulations

- 2009 International Building Code
- 2009 International Plumbing Code
- 2009 International Mechanical Code
- 2011 International Electrical Code
- Americans With Disabilities Act.
- State Wide Amendments to the International Building Code
- Laws, Rules and Regulations of the State Fire Marshal
- DFCM Design Standards
- Utah Valley University Design Standards
- Underwriters Laborites
- American Society of Testing and Materials (ASTM)

The design team shall coordinate their efforts directly with the DFCM and UVU



Occupancy Classification

The International Building Code (IBC) sets forth the prescribed occupancy classification and provided the minimum standards for the building construction that are safe for the intended use of the determined occupancy.

Design Considerations

A.1 Floor

Interior floor finishes shall be sealed concrete or tile with a continuous rubber base or coved tile base. All floors shall be designed to drain towards a floor drain system.

A.2 Walls

Interior walls should be easily cleanable and of provide a low cost to maintain. The materials should be durable to protect against vandalism. Materials such as tile, FRP, or other water proof panel type product should be considered

A.3 Ceiling

Ceiling height should generally be 8'-0" to 9'-0". Materials should be easily cleanable and durable and easy to replace in case of damage.

A.4 Toilet Partitions

Toilet partitions shall be a durable painted metal. Other types of partitions would be considered too expensive for this type of application.

A.5 Lighting

See electrical below. Also, exterior opaque type window system and/or solar tube type skylights should be considered.

A.6 HVAC

Occupancy type exhaust fans will need to be provided. Building heating and cooling will not be required

A.7 Plumbing

Durable wall mounted porcelain or stainless steel water closets and urinals should be provided. Units should be electronic flush type operable. Sinks shall be wall mounted porcelain with electronic operable spigot. Water heater can be electronic instant wall mounted type or electronic hot water tank type.

Janitor's sink shall be floor mounted type, hand operable with hose. Exterior ADA water (high/low) fountains shall be provided. Water fountains will not need to be refrigerated type unit. Exterior hose bibs shall be provided with anti-freezing controls. The plumbing system will need to be designed so that it can be shut down in the later fall months and drained for the winter.



A.8 Building Security

All exterior doors shall be higher grade hollow metal and frames with hollow metal frames grouted solid. Restroom doors shall have dead bolts for after hours locking and security. Keying and door cores shall be to Utah Valley University construction standards.

A.9 Graphics and Signage

Restrooms shall be provided with door signage that meets ADA standards

A.10 ADA Accessibility

The building and site will need to be designed to current ADA standards. Areas of concern are the parking lot to the soccer fields and restrooms, interior restroom spaces will need to be designed to current ADA and DFCM requirements.

A.11 Safety Equipment and Features

The building will not be required to have a fire sprinkler system or fire monitoring cabinet. Fire extinguisher cabinets and fire extinguisher along with smoke detectors will need to be provided.

A.12

The storage area shall be provided with a 8'x12' sectional overhead door. Consideration should be given for strength and security of the overhead door

A.13

A plumbing utility chase shall be provided for maintenance of the wall mounted plumbing fixtures. The chase size should be sufficient for easy maintenance of plumbing fixtures with room for maintenance personal to properly navigate.

Approximate space Requirements

Men's Restroom	460 square feet
Women's Restroom	460 square feet
Plumbing Chase	130 square feet
Janitors Space	130 square feet
Storage	685 square feet
<u>Electrical Room</u>	<u>100 square feet</u>
total aprox. sq. ft.	1,965 square feet



Electrical

Codes

The primary design codes and standards applicable to the electrical portion of this project include the following:

- IECC - International Energy Conservation Code (2012)
- IES - Illuminating Engineering Society Lighting Standards
- NFPA 70 - National Electric Code (2011)
- NFPA 101 - Life Safety Code (2012)

E.1 General

Rocky Mountain Power will provide primary electrical service to the property from the east side of Geneva Road. Coordinate electrical service requirements with Rocky Mountain Power, Utah Valley University Master Plan and allow for development on adjacent properties.

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Consideration should be given to installing one service for the restroom building, parking areas and soccer fields, and a second service for the future baseball fields to minimize the length of secondary feeders and branch circuits to the playing fields lighting systems.

E.2 Parking Lot and Walkway Lighting

Lighting shall be provided for all existing and new parking areas and all new walkways and paths from the parking areas to the playing fields.

Fixtures shall utilize Light Emitting Diode (LED) technology, be of durable construction and shall be full cutoff type to minimize light trespass and uplight.

Fixtures shall include an automatic light reduction feature which provides a 50% light and power reduction night setback after a set period of time. Each pole shall be equipped with a high abuse motion sensor which shall override the night setback upon activation and return the fixtures on the pole to full brightness for an adjustable period of time.

Light levels in parking lots shall not be less than 0.5 average maintained foot-candles when the night



setback feature is engaged.

Special attention shall be given to pole height and spacing to ensure the minimum light levels and to provide complete coverage by the pole mounted motion sensors.

All poles shall be rated for not less than 90 mph basic wind speed as defined in International Building Code Section 1609 with specified fixtures and installed on reinforced concrete bases in accordance with the manufacturer's written installation instructions.

Consult with Utah Valley University during project design for acceptable exterior fixture manufacturers and fixture types, and additional requirements.

E.3 Athletic Fields Electrical Lighting

Soccer Field lighting systems shall produce not less than 50.0 horizontal maintained foot-candles at 36" above the field playing surface and with a minimum to maximum uniformity ratio of not more than 2.0:1.

The lighting system shall be capable of limiting the initial horizontal illumination light spill levels to an average of 0.8 foot-candles with a maximum of 2.0 foot-candles at 150 feet from the edge of the playing field. Initial vertical illumination light spill levels shall not exceed an average of 2.0 foot-candles with a maximum of 3.6 foot-candles at 150 feet from the edge of the playing field.

Fixtures shall utilize a metal halide lamp light source and shall be specifically designed for athletic field lighting including reflector beam spreads means to limit light spill as indicated above.

Fixtures shall include step-dim ballasts and electronic control system to allow the use of lower light levels during pre-game and after game activities. Lighting controls shall be in a convenient location for each playing field and shall be housed in enclosures suitable for expected conditions and which provide a high degree of protection from vandalism.

Field lighting support structures shall be of modular construction consisting of a precast concrete pole base, galvanized steel pole sections, pole top luminaries' assembly and electrical components enclosures with factory assembled wiring harness. Direct burial steel poles are not acceptable.

Support structures shall be rated for not less than 90 mph basic wind speed as defined in International Building Code Section 1609 with fixtures, crossarms, and accessories, and installed in accordance with the manufacturer's written installation instructions.

Careful selection of support structure locations will be required due to the questionable nature of the existing subgrades and possible conflicts with existing subgrade structures. A geotechnical boring is recommended for each proposed support structure location. The reports will need to be



delivered to the lighting system manufacturer to use in preparation of the support structure design for the above wind load ratings.

E.4 Restroom/Storage Building Electrical Systems

Interior public area fixtures shall be architecturally styled high abuse fluorescent fixtures with ultraviolet stabilized polycarbonate lens and tamper resistant fasteners. Standard fluorescent fixtures may be used in storage and utility areas of the building, but high impact acrylic lenses are recommended to prevent accidental breakage when moving equipment in these areas.

Provide all fluorescent fixtures with programmed start electronic ballasts and extra long life lamps. All interior fixtures shall be controlled by occupancy sensors utilizing both passive infrared and ultrasonic technologies. Occupancy sensors in public areas shall be protected from vandalism by wire guards or other suitable means.

Suitable blocking shall be specified to properly support and secure high abuse fixtures in accordance with fixture manufacturer's written installation instructions.

Exterior building mounted light fixtures shall utilize Light Emitting Diode (LED) technology, be of durable construction, and shall be full cutoff type to minimize light trespass and uplight. Exterior building lighting shall be controlled by photocell.

Receptacles in the building shall be water resistant and tamper resistant, with ground fault circuit interrupter where required. Cover plates shall be stainless steel or other durable material acceptable to Utah Valley University. Provide "rain tight while in use" outdoor cover plates constructed of cast aluminum with powder coat paint finish.

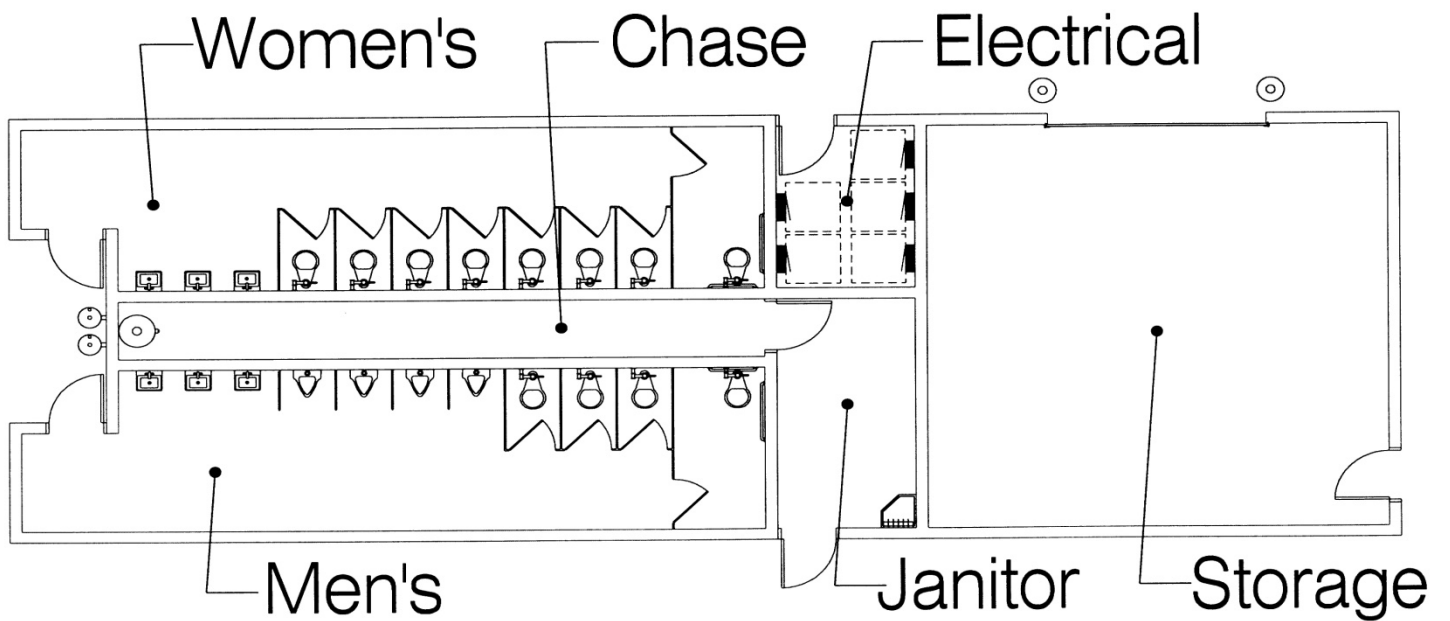
Communications

Public telephone communications is not anticipated to be required.

Underground conduit raceway system is required for installation of future public address sound systems and scoreboards on the athletic fields. Include power rough in for future systems. Coordinate requirements with Utah Valley University during project design.



5.0 a. General Restroom/Storage Layout



6.0 Summary and Cost

Project Cost

The facility will be located as shown on attached maps and drawings. The total facility will require all utilities, roads, parking, 4 soccer fields with lighting, sidewalks with parking and ADA parking and additional fill material to be provided as necessary for operation. The total budget for the work is set at \$4,000,000.00. The owner and DFCM would like to start construction work within 2 months of the design portion of the work being awarded. The owner would also like to have cost estimates provided during the schematic, design development and construction document phases of work.

